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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/379,481	08/23/1999	MICHAEL BENJE	2734/MEINKE/	1331
26304	7590	03/23/2005	EXAMINER	
KATTEN MUCHIN ZAVIS ROSENMAN			LEUNG, JENNIFER A	
575 MADISON AVENUE			ART UNIT	
NEW YORK, NY 10022-2585			PAPER NUMBER	

1764

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/379,481

Applicant(s)

BENJE, MICHAEL

Examiner

Jennifer A. Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 4,5,8,9,12 and 13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4,5,8,9,12 and 13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 December 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's amendment submitted on December 20, 2004 has been received and carefully considered. Claims 1-3, 6, 7, 10 and 11 are cancelled. Claims 4, 5, 8, 9, 12 and 13 are active.

### ***Specification***

2. The abstract of the disclosure is objected to because the abstract contains more than one paragraph. Correction is required. See MPEP § 608.01(b). In addition, the phrase, "Drawing to be published herewith: Fig. 1" should be deleted.

3. The following headings should be inserted into the specification:

On page 1, -- FIELD OF THE INVENTION -- should be inserted before line 1.

On page 1, -- BACKGROUND OF THE INVENTION -- should be inserted before line 4.

On page 3, -- SUMMARY OF THE INVENTION -- should be inserted before line 2.

On page 6, -- BRIEF DESCRIPTION OF THE DRAWINGS -- should be inserted before line 7.

On page 6, -- DETAILED DESCRIPTION OF THE INVENTION -- should be inserted before line 11.

### ***Drawings***

4. The drawings in marked-up form, submitted December 2, 2002, are of sufficient quality to permit examination. However, replacement drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to this Office action. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action.

***Claim Objections***

5. Claims 5 and 13 are objected to because of the following informalities:

In claim 5, line 1, "oxychlorization" should be changed to -- oxychlorination --.

In claim 5, line 6, "~~a said~~" should be changed to -- said --.

In claim 13, line 2, "oxychlorization" should be changed to -- oxychlorination --.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 4, 5, 8, 9, 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 5, "the quench vessel" (lines 4-5) lacks proper positive antecedent basis. Furthermore, it is unclear as to the structural relationship of plural baseplates to the other elements of the apparatus, and where it is disclosed in the specification and drawings (i.e., in the case that more than one of the "at least one baseplate" is presented. Note that the embodiment as recited in claim 5 is drawn to FIG. 1, which only shows a single baseplate). Furthermore, it is unclear as to the structural limitation applicant is attempting to recite by, "the filter cartridges being dipable into an upper region of a fluidized bed," as it is unclear as to whether the dipping feature constitutes a positive structural limitation. Furthermore, it is unclear as to the structural limitation applicant is attempting to recite by, "each chamber being in fluid communication with

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the outlet for the main gas stream, one chamber having an outlet for a bypass gas stream,” in lines 9-12. According to this recitation, one chamber would contain a single outlet to the main gas stream, and another chamber would contain two outlets, one for the main gas stream and one for the bypass gas stream. It is unclear as to where such a configuration is disclosed in the specification or drawings, or how such a configuration would enable the bypass gas stream to have a differing dust particle fraction than the main gas stream.

Regarding claim 8, “the filter elements allowing through dust particles” lacks proper positive antecedent basis. Also, “the filter cartridges retaining the dust particles” lacks proper positive antecedent basis.

Regarding claim 13, it is unclear as to the structural relationship of the “sintered metal filter cartridges” in lines 3-4 to the other elements of the fluidized bed reactor. Furthermore, it is unclear as to the process relationship of “a main gas stream” in line 7 to the “reaction gas mixture” set forth in line 5. Furthermore, it is unclear as to the process relationship of “a partial gas stream” in line 7 to the “reaction gas mixture” set forth in line 5. Furthermore, it is unclear as to the relationship of “a reaction gas mixture” in line 5 to the process of oxychlorination being conducted in the reactor.

***Allowable Subject Matter***

7. Claims 4, 5, 8, 9, 12 and 13 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action. In order to aid prosecution, the following claims drafted by the Examiner, considered to distinguish patentably over the art of record, to overcome 35 U.S.C. 112 2<sup>nd</sup> paragraph rejections, and to resolve any issues of clarity, are presented to Applicant for consideration:

THE REACTOR CLAIMS

*To replace current claim 5.*

14. (New): A fluidized-bed reactor for the oxychlorination of ethylene using a fluidized bed of catalyst granules subjected to abrasion, resulting in the creation of dust particles, said reactor comprising:

a dome part defining a dome space;

a baseplate located in said dome part of the reactor, and

a plurality of filter cartridges carried on the lower surface of said baseplate, said filter cartridges dipping into an upper region of the fluidized bed of catalyst granules;

wherein said dome space is divided above said baseplate into at least two chambers, said at least two chambers comprising a first chamber having an outlet for a main gas stream and a second chamber having an outlet for a bypass gas stream, wherein the bypass gas stream is connected to the main gas stream, and the main gas stream is connected to a quench vessel;

wherein a first group of said filter cartridges is coordinated with said first chamber and in communication with the main gas stream, and a second group of said filter cartridges is coordinated with said second chamber and in communication with the bypass gas stream; and

wherein said first group of filter cartridges have a pore size differing from a pore size of said second group of filter cartridges, said first group having a pore size configured to retain dust particles in the reactor, and said second group having a pore size configured to permit the discharge of dust particles from the reactor.

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*To replace current claim 8.*

15. (New): The fluidized-bed reactor of claim 14, wherein the ratio of the number of filter cartridges in said second group to the number of filter cartridges in said first group is approximately 1:9.

*To replace current claim 9.*

16. (New): The fluidized-bed reactor of claim 14, wherein said baseplate is provided with a cleaning means using compressed gas pulses.

*To replace current claim 12.*

17. (New): The fluidized-bed reactor of claim 14, wherein the filter cartridges comprise sintered metal filter cartridges.

#### THE METHOD CLAIMS

*To replace current claim 13.*

18. (New): A method of removing dust particles, resulting from the abrasion of catalyst granules, from a reaction gas mixture generated in the oxychlorination of ethylene in a fluidized-bed reactor, said reactor comprising a dome part divided into two separate dome spaces and a plurality of sintered metal filter cartridges communicating with each of said dome spaces, said method comprising the steps of:

filtering out dust particles from the reaction gas mixture using a first group of the sintered metal filter cartridges, passing the filtered reaction gas mixture to a first dome space of the two separate dome spaces, and removing the filtered reaction gas mixture from the first dome space via an outlet to a main gas stream, wherein the first group of sintered metal filter cartridges is configured to retain dust particles in the reactor;

filtering out dust particles from the reaction gas mixture using a second group of the sintered metal filter cartridges, passing the filtered reaction gas mixture to the second dome space, and removing the filtered reaction gas mixture from the second dome space via an outlet to a bypass gas stream, wherein the second group of sintered metal filter cartridges is configured to produce a filtered reaction gas mixture containing a predetermined content of dust particles of a size which is smaller than a predetermined particle size; and

passing the contents of the main gas stream and the bypass gas stream to a quench vessel.

*To replace current claim 4.*

19. (New): The method of claim 18, further comprising the steps of:  
analyzing a catalyst sample from the reactor;  
analyzing a change in heat transfer in the reactor;  
analyzing a deterioration of the fluidization behavior in the reactor; and  
switching on or switching off the bypass gas stream according to said analyzing steps.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

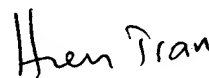
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer A. Leung  
March 19, 2005



**HIEN TRAN**  
**PRIMARY EXAMINER**